Queensland Government
Department of
Environment and Heritage Protection

Ref CTS 14932/17

9 June 2017

Mrs Jo-Ann Miller MP
Chair
Coal Workers' Pneumoconiosis Select Committee
Parliament House
George Street
BRISBANE QLD 4000

Email: cwpsc@parliament.qld.gov.au

Dear Mrs Miller

Thank you for your letter dated 1 June 2017 concerning the Coal Workers' Pneumoconiosis Select Committee's (committee) inquiry into occupational respirable dust exposure issues.

Please find attached a submission from the Department of Environment and Heritage Protection (the department) on the issues that were raised in your letter.

The departmental contact officer for these issues is:

Dr Faiz Khan
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The departmental officers available to brief the committee on Wednesday 14 June 2017 at Parliament House are:

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The department understands the committee's request to provide details of all enforcement actions undertaken in relation to air quality since 1997. This is a large scope of information and whilst the department is committed to meeting the request, we will require additional time to compile the information. Subject to the committee's views, it may be possible to provide a reduced scope of information over a shorter time period by focussing on enforcement actions pertaining to dust related matters specifically (including coal dust). The department respectfully requests additional time to consult with the committee regarding a reduced scope of information and to compile this in an appropriate format for review.

Should your staff have any further enquiries, please ask them to contact Dr Faiz Khan, Chief Scientist, of the department on telephone 07 3330 5466.

Yours sincerely

per

Jim Reeves
Director-General

Att

Coal Workers' Pneumoconiosis (CWP) Select Committee

Submission by the Department of Environment and Heritage Protection

Environmental Protection Act 1994

The *Environmental Protection Act 1994* (EP Act) is the principal piece of legislation in effect in Queensland to regulate the environmental harm and environmental nuisance which can result from the release of contaminants to the environment, including the release of contaminants to air. It does this in two main ways:

a) through a **licencing regime** under which resource activities and other activities which release contaminants must be authorised by way of an 'environmental authority'; and
b) through rules and offences relating to **'environmental nuisance'**, which is an unreasonable interference with an environmental value caused by, among other things, aerosols, fumes particulates or smoke[1]. These rules are administered by different levels of government.

However, the EP Act is drafted and administered so as to avoid overlap and inconsistencies with other legislation (including planning, transportation, public health or occupational health and safety legislation). In particular, the EP Act is primarily focused on off-site impacts and, in the case of air emissions, on ambient air quality. The EP Act does not seek to regulate those air quality issues, such as occupational exposure and health and safety, which are the subject of the *Coal Mining Safety and Health Act 1999*, *Work Health and Safety Act 2011*, *Mining and Quarrying Safety and Health Act 1999* or the *Petroleum and Gas (Production and Safety) Act 2004*.

Environmental authorities

An environmental authority (EA) under the EP Act is required to authorise an 'environmentally relevant activity' (ERA). ERAs are any resource activity authorised under the *Mineral Resources Act 1989* (including coal and other mines) or other resources legislation[2] and other activities ('prescribed ERAs') which are likely to cause environmental harm through the release of contaminants[3].

EAs can take two principle forms:

- 'Standard EAs' under which the operator of the mine or other ERA must conduct the activity within the constraints and the conditions listed in an 'ERA standard' prescribed by regulation. ERA standards are typically, though not exclusively, available for activities which are smaller in scale or which involve limited emissions of contaminants to the environment or for which the environmental controls are clear. The operators of ERAs can apply for variations to the conditions in ERA standards, which will be assessed in the same way as site-specific applications.
- 'Site-specific EAs' which require the operator of the EA to comply with conditions which are tailored to the particular environmental risks of an activity following an assessment process. That process involves an assessment of the air quality impacts against the ambient air quality objectives set in the *Environmental Protection (Air) Policy 2008* (Air EPP). The

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[1] S15 *Environmental Protection Act 1994*
[2] This includes the three petroleum Acts as well as the *Greenhouse Gas Storage Act 2009* and the *Geothermal Energy Act 2010*
[3] S19 EP Act and *Environmental Protection Regulation 2008* ss14 and 17 and schedule 2

conditions imposed on a site-specific EA can, for example, include specific emission limits for particular contaminants being released from a stack, actions to minimise off-site environmental nuisance (such as watering roads to minimise dust) or the preparation and implementation of a management plan to avoid and minimise particular environmental impacts. Neither the Air EPP nor the assessment of a site-specific EA application would include air quality parameters relevant to occupational exposure or health and safety, as those matters are addressed under separate legislation. The Air EPP does not contain parameters directed to occupational exposure to air contaminants.

Environmental nuisance

Environmental nuisance is an unreasonable impact on an environmental value caused by things such as aerosols, fumes, noise, odour, particles or smoke (it also has other aspects including noise and unhealthy or unsightly conditions caused by contamination). An 'environmental value' is a quality of the environment that is conducive to ecological health or public amenity or safety[4] and would include values such as a clean, safe air environment for the public.

Environmental nuisance is regulated under the EP Act through the offence of committing unlawful environmental nuisance (and related rules) and through conditions imposed on EAs. Responsibility for administering the environmental nuisance provisions of the EP Act is divided between DEHP and local government[5]. DEHP retains responsibility for regulating environmental nuisance caused by the ERAs it administers, while local government is responsible for the broader offence of environmental nuisance (which also applies to activities which are not ERAs) and other nuisance-related provisions of the Act.

Activities operating under an EA will be authorised to cause some degree of environmental harm and environmental nuisance. To the extent that environmental nuisance is authorised under an EA, it is lawful and will not be an offence under the EP Act[6].

The EP Act also excludes specific activities from the offences of environmental nuisance. Those activities are listed in schedule 1 of the Act and include types of activities which are better regulated under other statutory regimes or by the relevant government infrastructure owner. For example, noise from many forms of transport and other infrastructure is not subject to the offence of environmental nuisance on the basis that planning law is the more appropriate tool for creating appropriate separation distances (or other noise mitigation) between road or rail infrastructure and sensitive land uses. Similarly, emissions of contaminants at a workplace and public health risks are specifically excluded from the scope of environmental nuisance on the basis that workplace and public health legislation are best placed to address those risks.

National Environment Protection Council (Queensland) Act 1994

DEHP also administers the National Environment Protection Council (Queensland) Act, which mirrors legislation in the Commonwealth and other states and territories to establish the National Environment Protection Council (NEPC).

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[4] S9 EP Act

[5] Ss98 – 100 *Environmental Protection Regulation 2008*

[6] Ss440 and 493A EP Act

The aim of NEPC is to ensure that people enjoy equivalent standards of protection from air, water or soil pollution and from noise, wherever they live in Australia, and that business decisions are not distorted by different standards in different states. This is achieved through the making of National Environment Protection Measures (NEPMs), which focus on particular aspects of the environment and which jurisdictions commit to adopting and implementing. Each year all jurisdictions report the how they have implemented the measure and its effectiveness.

The Ambient Air Quality NEPM (AAQ NEPM) establishes air quality standards and a monitoring protocol for the seven most important air pollutants, including particulate matter. In Queensland, the Ambient Air Quality NEPM standards are incorporated as air quality objectives in the Air EPP.

Air Quality Monitoring

DEHP has policy responsibility for the AAQ NEPM and the Department of Science Information Technology and Innovation (DSITI) manages, collates and interprets air quality monitoring for EHP.

EHP's air quality monitoring focusses on ambient air quality and not air quality related to work place health and safety. The Queensland air monitoring network consists of a series of stations around the state containing instruments which record and store weather and air pollutant data. The air quality index is calculated by converting the measured pollutant concentrations into index values, which are categorised in relation to standards. Visitors can view the air quality index and request information for a particular day and time.

The current Queensland Government PM_{10} (particulate matters with a diameter of 10 micrometres or less) and $PM_{2.5}$ (particles with a diameter of 2.5 micrometres or less) monitoring network stations are shown in the table below. Monitoring sites operated by industry that report data in real time to Queensland Government are also shown in the table.

DEHP's mining model conditions, which apply to mining of black coal, prescribe that the proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the prescribed levels when measured at any sensitive or commercial place. Companies are required to report to DEHP in the case of non-compliance with any environmental authority conditions and DEHP can also require a company to undertake monitoring if there is a complaint.

The most recent results of Queensland's ambient air quality monitoring in 2015/16 indicate that the goal of the AAQ NEPM was met for all pollutants at all monitoring stations where there was sufficient data capture to assess compliance, except for sulfur dioxide and PM_{10} in Mount Isa.

Coal Dust in Rail Corridors

A review of air quality monitoring studies in rail corridors and around rail systems in southern Queensland has shown that while coal dust and the influence of coal trains on dust levels has been detected, the levels of total dust (including coal dust) are well below air quality objectives for the protection of human health and amenity impacts. Additional dust mitigation measures implemented by all coal companies from 2014 have been, and continue to be, effective in reducing the loss of coal dust from loaded rail wagons during transport. Further information is available on the department's website at http://www.ehp.qld.gov.au/management/coal-dust/monitoring.html .

Monitoring has shown no evidence of the passage of coal trains having an adverse impact on dust levels adjacent to the rail corridor. Most rail transport-related dust comes from re-suspension of particles from ground surfaces within the rail corridor by the air turbulence generated by passing trains of all types, not just coal trains.

While the coal deposition levels measured in Western-Metropolitan Rail System (WMRS) Coal Dust Monitoring Report (Phase 1) were well below the dust nuisance assessment value, Phase 2 monitoring has demonstrated a very significant reduction in the mass of coal depositing from the air from levels initially measured in March and April 2013 before the Coal Dust Management Plan (CDMP) measures were implemented.

Across the rail system as a whole, the estimated average deposition rate of coal dust has fallen from a pre-CDMP level of 7 $mg/m^2/day$ to 1 $mg/m^2/day$ in 2014 and 2015, a reduction of 86%. The reduction at individual monitoring locations has ranged from 67% to 93%. At the current estimated rail system average deposition rate of 1 $mg/m^2/day$, coal deposition is just 0.8% of the EHP dust nuisance assessment value of 120 $mg/m^2/day$.

Based on the Phase 2 monitoring results, implementation of the CDMP measures, including load profiling and veneering, has been and continues to be highly effective in reducing the loss of coal dust from loaded rail wagons during transport. Re-suspension of dust from the rail corridor by the air turbulence generated by passing trains of all types, not just coal haulage, has been identified as the primary air quality impact from rail transport.

The monitoring results showed that ambient particle concentrations complied with ambient air quality objectives at all rail corridor monitoring sites during both the pre- and post-veneering monitoring periods. The major influence on the levels of particles was not rail transport emissions, but other urban particle emission sources.

Coal particles typically accounted for about 10% of the total surface coverage in the deposited dust samples, with the amount present in individual samples ranging from trace levels up to 20% of the total surface coverage.

Queensland Health has concluded that, for people living along the rail corridor, the overall dust concentrations from all particle sources measured during the investigation are unlikely to result in any additional adverse health effects.

Aurizon has in place a CDMP on the Central Queensland Coal Network (CQCN) and carries out an opacity monitoring program, along with extensive management practices adopted by the supply chain. The monitoring provides a measure for understanding coal dust lift off from coal trains and allows the tracing of any exceedances back to the relevant parties.

Veneering of coal wagons involves the application of a biodegradable polymer spray onto the surface of loaded coal profiling. Aurizon claims to have reduced coal dust lift-off en route by up to 75% as a result of veneering.

Compliance

In broad terms, complaints about dust and nuisance, and notifications of exceedances or breaches of conditions are investigated by the department and appropriate enforcement action taken in

accordance with the department's enforcement guidelines. This can result in the implementation of management programs at the site, the issuing of statutory orders against the environmental authority holder or the issuing of fines, with the objective of returning the operation to compliance with environmental authority conditions.

Air Quality Monitoring Stations for Particulates

PM_{10}			$PM_{2.5}$		
AAQ NEPM	Non-AAQ NEPM	Industry-operated	AAQ NEPM	Non-AAQ NEPM	Industry-operated
SEQ: Mountain Creek Rocklea Springwood Flinders View *Gladstone:* South Gladstone *Mackay:* West Mackay *Mount Isa:* The Gap	*SEQ:* Cannon Hill Brisbane CBD South Brisbane Woolloongabba Yatala Jondaryan *Gladstone:* Targinie Fisherman's Landing Boat Creek Clinton Auckland Point Boyne Island *Moranbah:* Moranbah *Townsville:* Coast Guard	*SEQ:* Wynnum North Wynnum West Lytton *Mount Isa:* RSL Suter Road May Downs	*SEQ:* Rocklea Springwood *Gladstone:* South Gladstone	*SEQ:* Cannon Hill South Brisbane Woolloongabba Yatala Jondaryan *Gladstone:* Targinie Fisherman's Landing Boat Creek Clinton Boyne Island	*SEQ:* Wynnum North Wynnum West Lytton *Mount Isa:* RSL Suter Road May Downs

AAQ NEPM: Monitoring stations that measure Ambient Air Quality for NEPM reporting

Non-AAQ NEPM: Monitoring stations not used for AAQ NEPM reporting